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EXAMINER

NGO, HUYEN LE

ART UNIT PAPER NUMBER

2871

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/890,553

Applicant(s)

SEIBERLE ET AL.

Examiner

Julie-Huyen L. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *figure 21*.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-9, 13-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056).

With respect to claims 1, 3, 13 and 17-19, Suygiyama et al. teach (col. 3 lines 21-63) a method of making a wall of a liquid crystal cell comprising a step of imparting a property to a layer of a material on the wall, said property being that liquid crystal molecules placed on the material on the wall in use of the cell adopt a preferred alignment, the method comprising exposing the material to unpolarised radiation (natural light) of ultraviolet from an oblique direction, wherein the said property further includes imparting a preferred tilt as well as a preferred azimuthal alignment to such liquid crystal molecules.

However, Suygiyama et al. fail to disclose a method of making a wall of a liquid crystal cell, wherein between the source of the radiation and the material to generate locally different oblique radiation, there is interposed a microelement array for transmitting light to generate the multi-domains of alignment.

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Koike et al. teach (Fig. 21) a method of making a wall of a liquid crystal cell, wherein between the source of the radiation and the material, there is interposed a microelement array for transmitting light to generate the multi-domains of alignment.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell as Suygiyama et al. disclosed with a microelement array interposes between the source of the radiation and the material for transmitting light to generate the multi-domains of alignment.

With respect to claims 5-7 and 15, Suygiyama et al. teach (col. 3 lines 24-29 and lines 34-36) a method of making a wall of a liquid crystal cell, wherein the imparted preferred tilt (pre-tilting angle) in normal direction (homeotropically orienting).

With respect to claims 8-9, Suygiyama et al. teach (col. 3 lines 31-34) a method of making a wall of a liquid crystal cell, wherein the angle of incidence φ of the radiation to the normal to the layer is within the range $5^\circ \leq \varphi < 85^\circ$, which covers range $5^\circ \leq \varphi < 70^\circ$.

With respect to claim 11, Suygiyama et al. teach (Figs. 3A-B) a method of making a wall of a liquid crystal cell, wherein the radiation to which the material is exposed is zone-wise patterned, whereby, in said imparted property, the preferred alignment is zone-wise patterned.

With respect to claims 4 and 14, Suygiyama et al. disclose (Figs. 4A-B) a method of making a wall of a liquid crystal cell, of which at least one wall is in contact with liquid crystal material ML to generate locally different oblique radiation.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056) as applied to claim 1 above, and in further view of Gibbons et al. (US5929201A).

Gibbons et al. teach (col. 14 line 34 to col. 35 line 60) a method of imparting a property to a layer of a material on the wall, said property being that liquid crystal molecules placed on the material on the wall in use of the cell adopt a preferred alignment, the method comprising exposing the material to unpolarised radiation or elliptically/circularly polarized radiation from an oblique direction,

wherein said property further includes imparting a preferred tilt as well as a preferred azimuthal alignment to such liquid crystal molecules, the irradiation energy (measured normal to the radiation) is 0.001 to $5\text{J}/\text{cm}^2$, which is covers the energy less than $2\text{J}/\text{cm}^2$.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell as Suygiyama et al. in view of Koike et al. disclosed with the irradiation energy (measured normal to the radiation) is 0.001 to $5\text{J}/\text{cm}^2$ for preventing the risk of damage to other materials on the substrates.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056) as applied to claim 1, in view of in view of Ichimura et al. (US6001277A).

Ichimura et al. teach (col. 41 lines 64-67) a method of making a wall of a liquid crystal cell, wherein a material is cross-linked by the irradiation for improving thermal stability of liquid crystal alignment.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell as Suygiyama et al. in view of Koike et al. disclosed with a material that is cross-linked by the irradiation for improving thermal stability of liquid crystal alignment.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056) as applied to claim 14, in view of Woo et al. (GB 2319093 admitted in IDS).

Woo et al. teach (Figs 12a-h) a method of making a wall of a liquid crystal cell comprising imparting a property to a layer of a material on the wall, said property being that liquid crystal molecules placed on the material on the wall in use of the cell adopt a preferred alignment, the method comprising exposing the material to unpolarised radiation (natural light) of ultraviolet from an oblique direction,

wherein a liquid crystal cell is hybrid aligned nematic, which indicates an orientation form wherein the liquid crystalline polymer is nematic-oriented and the angle of director in the liquid crystalline polymer relative to the film upper surface and the

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angle of director in the liquid crystalline polymer relative to the film lower surface are different from each other. Thus, since the director-film surface angle is different between the vicinity of the upper interface and the vicinity of the lower interface.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell disclosed by Sugiyama and Koike et al. with a liquid crystal cell is hybrid aligned nematic for high contrast ratio and fast response.

Response to Arguments

Applicant's arguments filed on 7/11/2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are following:

- A. Applicants disagree that Newly submitted claims 20-21 have been withdrawn.
- B. Sugiyama and Koike fail to disclose a microelement array able to locally generate different oblique angles of irradiation onto layers.

Examiner's responses to Applicants' ONLY arguments are following:

A. Newly submitted claims 20-21 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

- Claim 20 now recites "the microelement array is a hologram element" that is a three-dimensional image, which was not originally presented;

- claim 21 now include a limitation “the microelement array is an array of light switches” that is able to switch light (ON or OFF) to pass or not to pass through the array

Applicant is to note that the originally presented claims recite, “the microelement array is a microprism array,” which was not a hologram element or an array of light switches.

Therefore, it is a serious burden on the examiner due to different searches is needed for different microelement arrays that are recited.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits.

Accordingly, claims 17-21 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

B. Koike disclose (Fig. 21, col. 17 lines 25-30) that the UV light can arrive with the oblique angle (not 90°) and, thereby, can locally generate different oblique

angles of irradiation onto a layer 26 (see attachment, examiner demonstrates the light path (a) and (b) generating different oblique angles of irradiation onto a layer 26).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (703) 305-3508. The Examiner can normally be reached on T-Friday.

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (703) 305-3492.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

August 21, 2003



Julia Huyen L. Ngo

Patent Examiner

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